

Remarks:

Pending in this application at the time of the outstanding Office Action were claims 9-19, 33-36, 40, 41, and 53-81. This amendment adds claims 82-86. The Office Action rejected claims 9-19, 33-36, 40, 41, and 53-81 as being anticipated under 35 U.S.C. 102(b) by U.S. Patent No. 5,050,075 issued to Herman (hereinafter "Herman").

Herman Fails to Disclose Continuous Comparisons

Regarding independent claim 9, the claim recites, in pertinent part, a retrieval device for retrieving data from a mass storage medium including a matching circuit for comparing a determined key with a data signal representative of a continuous stream of data. The Office Action asserts that Herman discloses a matching circuit for comparing a data key with a digital signal representative of a continuous stream of data.

However Herman describes a data filter that contains a pipeline processing unit including an arithmetic logic unit which is intended to process instructions in a pipelined fashion. Each record from the high speed data stream is buffered in the data filter for a sufficiently long period of time so that a batch of instructions requiring information contained in a record can be carried out before the record is removed from the data filter. See column 3, lines 1-8. Thus, instead of comparing the key and a continuous stream of data, Herman buffers and compares the data record by record. This is in contrast to the claimed invention which allows a key to be in essence "slid" over a continuously varying data read signal such that there is no hesitation in reading data from the mass storage medium. See page 12, lines 21-23.

Since claim 9 recites comparing the key and a continuous stream of data, Herman fails to anticipate claim 9. Accordingly, the Applicants respectfully request that the rejection of claims 9 and the claims dependent there from, claims 10- 11 and 33, be withdrawn. For similar reasons the Applicant respectfully requests that the rejection of claims 12-19, 33-36, 40, 41, and 53-81 (of which claims 12, 18, 34, 53 and 77 are independent) be withdrawn.

Herman Fails to Disclose Frameless Comparisons

With reference to claim 34, the Office Action asserts that Herman discloses a matching circuit for framelessly comparing a key with a data signal as set forth in claim 34. In contrast to the present invention, Herman expressly discloses each record of the database as a structured sequence of attributes as shown in Figure 2 (i.e., a frame). See also column 4, lines 60-65. Thus, Herman describes comparing framed data rather than the frameless comparison recited by claims 34, 59, and 68, and 82-85. Thus, Herman fails to anticipate claims 34, 59, 68, and claims 35 and 36 (which depend from claim 34). Accordingly, the Applicant respectfully requests that the rejection of claims 34-36, 59, and 68 be withdrawn.

The Applicant also respectfully submits that new claims 82-86 are believed to be patentable over Herman for similar reasons to those set forth herein.

Herman Fails to Disclose An Approximate Matching Circuit

With regard to claims 40, 41, 79, and 80, the Office Action asserts that Herman discloses a matching circuit configured to approximately match a digital key with a digital data signal. However, Herman describes an operational code that defines a test to be performed on the result of a comparison between a memory [data] and a pattern [a key]. The tests include equal, greater than, or less than. See Col. 3, lines 36-37. Thus, the tests described by Herman are mathematical. Of course, an "equal" test requires exact equivalence and is therefore not approximate. Conversely, both "greater than" and "less than" tests allow the compared key and data to be different to an infinite degree. Moreover, the mathematical tests described by Herman return only a binary (e.g., yes/no) answer. In contrast, approximate matching allows (inter alia) searching to find data that has been corrupted, incorrectly entered data, data which only generally corresponds to a category, as well as other kinds of data searches that are highly desired in many applications. See page 3, line 40 to page 4, line 2. Accordingly, neither of the three tests described by Herman are approximate tests as set forth in the subject claims.

For these reasons the Applicants respectfully request that the rejection of claims 40-41 be withdrawn. Similarly, since claims 18, 53, 58, 62, 66, 68, and 72-73 also incorporate approximate matching, the Applicants submit that these claims are also patentable over

Herman. The Applicants also requests that, since claims 79 and 80 do not incorporate approximate matching, the rejection of claims 79 and 80 should be withdrawn.

The Office Action similarly asserts that Herman claims approximate matching as set forth in claims 53 and 77. See page 6, line 3 of the Office Action. For similar reasons as those set forth above, the Applicant requests that the rejection of claim 53 be withdrawn. Regarding claim 77, it is requested that, because claim 77 does not recite approximate matching, the rejection of claim 77 be withdrawn.

Herman Fails to Disclose Either An Analog Key or Analog Data

With regard to claims 60, 64, and 65, the Office Action rejects the subject claims on the basis of the analysis of claim 9 in the Office Action. Again, claim 9 is directed to a data retrieval device whereas claims 60 and 65 recite an analog key and analog data stream. However, instead of analog signals, Herman describes operands in storage locations, an arithmetic logic unit, op-code, and execution of instructions. See column 3, lines 48-59. Since these terms all refer to digital technology, Herman fails to disclose an analog key (and analog data). Therefore, Herman fails to anticipate claims 60 and 65. Accordingly, the Applicants respectfully request that the rejection of claims 60 and 65 be withdrawn. With regard to claim 64, since the subject claim does not recite either an analog key or analog data, the Applicants respectfully request that the rejection of claim 64 should be withdrawn or additional explanation of the rejection be provided.

The Applicants note that claims 9, 16, 41, and 79 recite analog keys and data. Thus, for reasons similar to those set forth above, the Applicants also respectfully submit that claims 9, 16, 41 and 79 are patentable over Herman.

Herman Fails to Disclose Calculating a Correlation Coefficient

With regard to claims 61, 62, 66, and 72, the Office Action asserts that Herman discloses the retrieval device being configured to determine that an approximate match exists if the correlation coefficient has a larger than or equal to a predetermined threshold. In pertinent part, claim 61 requires a retrieval device being configured to perform a pattern comparison by calculating a correlation coefficient. However, Herman generally describes two operations: a

masked comparison and a conditional assignment. See respectively column 10, lines 43 to 49 and column 11, lines 1-2. Since neither of these operations includes performing a correlation between a key and data, Herman fails to anticipate a retrieval device being configured to calculate a correlation coefficient, as set forth in claim 61. Accordingly, the Applicants respectfully request that the rejection of claim 61 be withdrawn. For similar reasons as those set forth above, the Applicants request that the rejection of claims 62 and 66 be withdrawn.

Further, the Applicants submit that because claim 34 recites correlating a key and data that claim 34 is patentable over Herman.

Herman Fails to Disclose a Programmable Logic Device

With regard to claim 81, the subject claim recites the retrieval device comprising a programmable logic device. The Applicant has made a diligent search of the Office Action for a rejection of the programmable logic device as set forth in claim 81 to no avail. However, while Herman describes a VLSI data filter (see the Abstract), VLSIs do not encompass programmable logic devices. Accordingly, it is respectfully submitted that the retrieval device comprising a programmable logic device, as set forth by claim 81, is patentable over Herman.

Miscellaneous Issues

Regarding claim 81 again, the Office Action rejected claim 81 along with claims 11 and 36 (see page 4 of the Office Action). Since the subject matter discussed in regard to this rejection was common only to two of the three rejected claims, claims 11 and 36, it is believed that the rejection of claim 81 should be withdrawn or further explanation of the rejection should be provided.

The Office Action rejected claims 33 based on the analysis contained in the Office Action of claim 9. However claim 9 is an independent claim directed toward a retrieval device whereas claim 33 is a dependent claim directed to a memory connected to a retrieval device. Therefore it is believed that the rejection of claim 33 should be withdrawn or further explanation of the rejection be provided.

The Office Action also rejected claim 63 based on the analysis contained in the Office Action of claim 61. However, claim 61 is directed toward calculating a correlation coefficient

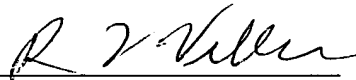
whereas claim 63 is directed toward a user defined predetermined threshold to be used in conjunction with the correlation coefficient to determine that an approximate match exists (as set forth in claims 62 and 63). Since claim 63 depends from claim 61 and contains additional recitals over claim 61, it is respectfully requested that the rejection be withdrawn or that further explanation of the rejection be provided.

Lastly, with regard to claims 74-76, the Office Action rejected the subject claims based on the analysis in the Office Action of claim 34. However, claim 34 is directed toward a retrieval device whereas claims 74-76 are directed to mass storage mediums in communication with the retrieval device and comprising a database of DNA sequences, audio recordings, and images as set forth in the respective claims. Accordingly, it is believed that the rejection of claims 74-76 should be withdrawn or additional explanation of the rejection be provided.

Conclusions:

Thus, it is believed that all of the pending claims are allowable and that all of the rejections have been overcome or rendered moot. Accordingly, Applicant respectfully submits that the application is in condition for allowance. Favorable action is respectfully requested.

Respectfully submitted,



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